

# Impact of the COVID-19 Pandemic on Cystic Fibrosis Pulmonary Exacerbations

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## Background and Hypothesis

CF pulmonary exacerbations (PEX) are episodes of decline in respiratory function that can be triggered by a variety of mechanisms, including respiratory viral infections. The COVID-19 pandemic resulted in school closures and home isolation policies and a potential reduction in exposure to other respiratory viruses. The goal of this project is to study the impact of the COVID-19 pandemic on CF PEX at the Riley Hospital for Children. We hypothesize that the incidence of PEX will be lower during the period of the COVID-19 lockdown from March 1 to May 15 in 2020 compared to the same time interval in 2019.

## Methods

We performed a retrospective chart review of children with CF ages 2-12 (N=80) seen at Riley in 2019 and 2020 and collected data within the following timeframes: January 1 to March 15 2019 and 2020, and March 16 to May 15 2019 and 2020. We collected data on baseline clinical features and details of each PEX event. Data were analyzed with parametric and non-parametric descriptive statistic tests as appropriate; significance was set at  $P \leq 0.05$ .

## Results

The percent of PEX events in the study cohort was significantly lower in 2020 compared to 2019 for January 1 to March 15 (56% vs 42%,  $P=0.0116$ ) and March 16 to May 15 (35% vs 14%,  $P<0.0001$ ). The percent of in-person PEX events was significantly lower during March 16 to May 15 in 2020 compared to 2019 (15% vs 1%,  $P=0.0066$ ).

## Conclusions and Potential Impact

COVID-19 restrictions were associated with a decrease PEX events. We speculate that this reflects a reduced exposure to respiratory viral infections in general. The decrease in in-person PEX events may reflect a shift towards telehealth during the COVID-19 restrictions. These results provide a foundation for further research into triggers and prevention of CF PEX.